

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of modeling a condition of an elevator tensile support, comprising;

determining a rate of degradation of the tensile support for a selected load using at least one sample tensile support and a fatigue machine;

modeling a configuration of at least one selected elevator system;

estimating an elevator traffic pattern;

determining sheave contact and load information using the modeled configuration and the estimated traffic pattern; and

determining a mean degradation of the tensile support from the determined rate of degradation and the determined sheave contact and load information;

generating a first map from the determined mean degradation;

generating a second map correlating an electrical characteristic with a selected degree of strength degradation; and

combining the first and second maps to generate a third map correlating the electrical characteristic with a remaining strength in the tensile support.

2. (Original) The method of claim 1, including determining a plurality of mean degradation values by varying at least one of the modeled configuration or the estimated elevator traffic pattern.

3. (Original) The method of claim 1, including determining a relationship between an electrical characteristic and a selected condition of the tensile support and using the determined relationship and the determined mean degradation for determining an apparent electrical characteristic value corresponding to the selected condition of the tensile support.

4. (Currently Amended) The method of claim 3, including repeatedly performing the steps of claim 3 to determine a plurality of the apparent electrical characteristic values and using the plurality of the apparent electrical characteristic values to determine a relationship between a corresponding measured electrical characteristic and a condition of a tensile support.
5. (Original) The method of claim 4, wherein the electrical characteristic is resistance.
6. (Original) The method of claim 5, including subsequently measuring a resistance of a tensile support and using the determined relationship between resistance and the selected condition of the tensile support to determine a current condition of the tensile support.
7. (Cancelled)
8. (Currently Amended) The method of ~~claim 7~~claim 1, wherein the step of generating the first map comprises incorporating at least one tensile support operational factor with the determined rate of degradation.
9. (Original) The method of claim 8, wherein said at least one tensile support operational factor is selected from the group consisting of an elevator system configuration, estimated elevator traffic, actual elevator usage, and sheave contact.
10. (Previously Presented) The method of claim 9, wherein said at least one tensile support operational factor is the actual elevator usage, and wherein the step of generating the first map further comprises using an updated actual elevator usage.

11. (Currently Amended) The method of ~~claim 7~~claim 1, wherein the combining step comprises:
 - generating an intermediate map that correlates the electrical characteristic with remaining strength in a segment of the tensile support, wherein the tensile support comprises a plurality of segments; and
 - summing the remaining strengths of the plurality of segments to generate the third map.
12. (Currently Amended) The method of ~~claim 7~~claim 1, comprising incorporating a degradation rate variance factor in the first map.
13. (Currently Amended) The method of ~~claim 7~~claim 1, comprising incorporating an electrical characteristic variance factor in the second map.
14. (Currently Amended) The method of ~~claim 7~~claim 1, comprising incorporating at least one of a temperature-induced variance factor and an electronic device variance factor to generate the third map.
15. (Currently Amended) The method of ~~claim 7~~claim 1, wherein the electrical characteristic is resistance.
16. (Cancelled)

17. (Currently Amended) A system for determining a condition of an elevator tensile support, comprising:

a device for measuring an electrical characteristic of at least a portion of the tensile support; and

a controller that determines a current condition of the tensile support by relating the measured electrical characteristic to a predetermined data set indicating a relationship between corresponding apparent characteristic values and conditions of the tensile support, the relationship being based upon at least one of a determined rate of degradation of the tensile support for a constant load, a modeled configuration of an elevator system, an estimated elevator traffic pattern, or a mean degradation of the tensile support based upon determined sheave contact and load information, wherein the controller

determines a rate of degradation of the tensile support for a selected load;

models a configuration of at least one selected elevator system;

estimates an elevator traffic pattern;

determines sheave contact and load information using the modeled configuration and the estimated traffic pattern; and

determines a mean degradation of the tensile support from the determined rate of degradation and the determined sheave contact and load information;

generates a first map from the determined mean degradation;

generates a second map correlating an electrical characteristic with a selected degree of strength degradation; and

combines the first and second maps to generate a third map correlating the electrical characteristic with a remaining strength in the tensile support.

18. (Original) The system of claim 17, wherein the controller determines a relationship between an electrical characteristic and a selected condition of the tensile support and uses the determined relationship and the determined mean degradation for determining an apparent electrical characteristic value corresponding to the selected condition of the tensile support.

19. (Currently Amended) The system of claim 18, wherein the controller determines a plurality of the apparent electrical characteristic values and uses ~~these~~ the plurality of the apparent electrical characteristic values to determine a relationship between a corresponding measured electrical characteristic and a condition of a tensile support.

20. (Previously Presented) The system of claim 17, wherein the electrical characteristic is resistance.

21. (Currently Amended) A controller useful for determining a condition of an elevator tensile support, comprising:

- a storage medium containing programming for
 - determining a rate of degradation of the tensile support for a selected load;
 - modeling a configuration of at least one selected elevator system;
 - estimating an elevator traffic pattern;
 - determining sheave contact and load information using the modeled configuration and the estimated traffic pattern; and
 - determining a mean degradation of the tensile support from the determined rate of degradation and the determined sheave contact and load information;
 - generating a first map from the determined mean degradation;
 - generating a second map correlating an electrical characteristic with a selected degree of strength degradation; and
 - combining the first and second maps to generate a third map correlating the electrical characteristic with a remaining strength in the tensile support.

22. (Original) The controller of claim 21, including programming for determining a plurality of mean degradation values by varying at least one of the modeled configuration or the estimated elevator traffic pattern.

23. (Original) The controller of claim 21, including programming for determining a relationship between an electrical characteristic and a selected condition of the tensile support and using the determined relationship and the determined mean degradation for determining an apparent electrical characteristic value corresponding to the selected condition of the tensile support.

24. (Original) The controller of claim 23, including programming for determining a plurality of the apparent electrical characteristic values and using the values to determine a relationship between a corresponding measured electrical characteristic and a condition of a tensile support.

25. (Previously Presented) The method of claim 1, comprising using the fatigue machine to apply repeated bend cycles to the at least one sample tensile support.